REMARKS

Favorable reconsideration is respectfully requested in view of the previous amendments and following remarks.

Before turning to the prior art rejections, a general discussion of the embodiment illustrated in Figs. 2A-2C is provided. An interferometer includes a beamsplitter 10, an end reflector 11 constituted by plane reflectors, a first angle reflector 14 and a second angle reflector 15, each constituted by plane reflectors, for reflecting the beams between the beamsplitter 10 and the end reflector 1, the first and the second angle reflector being rotatable around an axis ω. As illustrated in Fig. 1, the angle line A3 of the end reflector 11 is arranged perpendicular to the angle lines A1 and A2 of the first and second angle reflectors 14 and 15. As discussed in the paragraph starting on line 23 of page 11, this arrangement allows the optical path difference between beams to change quickly in proportion to a shift in the rotational angle of the first and second angle reflectors 14 and 15.

Claims 1 and 11 are rejected as being unpatentable over U.S. Patent No. 6,075,598, hereinafter the '598 patent, in view of U.S. Patent No. 6,469,790, hereinafter Manning.

Fig. 10 of the '598 patent illustrates an interferometer having a pair of mirrors 12, 13 connected to a mirror 14 so that the mirrors 12, 13, 14 form a uniform rotating structure with angles of 90 degrees between the mirrors. The '598 interferometer also includes two retroreflecting plane mirrors 11', 11", and a beamsplitter 10 for dividing a light beam from a light source into two separate beams S1, S2 and for combining the retroreflected beams into an interference beam.

By contrast, Claims 1 and 11 both recite that an end reflector of the interferometer is an angle reflector. The angle reflector is constituted by plane reflectors and its angle line is arranged perpendicular to an angle line of the recited first and second angle reflectors.

For the recited interferometer, the deviation angle is $\Omega_1=\theta\varphi\gamma\sin 2\alpha\approx 2\alpha\theta\varphi\gamma$, where 2α is the angle between the beams to and from the rotating angle reflectors, θ is the angle between the angle lines of the rotating angle reflectors, φ is the rotation angle of the carousel and γ is the angle indicating how much the angle between the angle lines of the end reflector and the rotating reflector deviates from 90 degrees. For the '598 interferometer, the deviation angle is given by $\Omega_2=2\alpha\theta\varphi$.

In view of these equations, it is clear that the deviation angle of the recited interferometer can be made significantly smaller than the deviation angle of the '598 interferometer. Smaller deviation angle results in higher modulation, to which modulation a signal to be measured is proportional. In other words, with the recited interferometer, a desired value of modulation can be achieved with less optical accuracy and adjustment.

Nowhere in the '598 patent is there any suggestion to apply an angle reflector as an end reflector. However, the Official Action takes the position that it would have been obvious to an ordinarily skilled artisan in view of the disclosure in Manning to modify the two retroreflecting plane mirrors 11', 11" of the '598 patent to instead be angle reflectors. Applicants disagree.

Manning's Fig. 20 illustrates an interferometer having a roof reflector (80) as a return reflector. As discussed in column 12, lines 54-55 of Manning, the purpose of the roof reflector is to convert the interferometer to a four-beam interferometer.

However, nowhere in Manning is there any suggestion of applying a roof reflector for decreasing the deviation angle of the interferometer, and thus for increasing the performance of the interferometer. On the contrary, in Manning, it is disclosed that replacement of a flat return reflector to a roof reflector results in a degraded performance of the interferometer. Manning teaches that when using a roof reflector, compensation for tilt and shear of the return reflector is preserved with one exception: the interferometer becomes sensitive to rotation of the roof reflector about axes parallel to the incident beams, as discussed in column 12, lines 63–66 of Manning.

The Official Action indicates that the proposed modification would have been obvious in order to convert the '598 interferometer into a four-beam interferometer for optical subtraction. However, lines 55-60 of column 12 of Manning indicate that, in the conversion of Manning's interferometer into a four-beam interferometer for optical subtraction, an additional source 10' and an additional sensor 20' would also be required. However, the Official Action fails to explain, in light of the various differences between the '598 interferometer and the Manning interferometer, how the '598 interferometer could be converted to a four-beam interferometer without also adding an additional source and an additional sensor, or how it would propose to incorporate an additional source or an additional sensor into the '598 interferometer to transform the '598 interferometer into a four-beam interferometer, or how such a four-beam interferometer could be used for optical subtraction. Accordingly, the Official Action has failed to make even a *prima facie* case of obviousness.

In view of the above, the Official Action's proposed combination would not have been obvious to an ordinarily skilled artisan.

Accordingly, Claims 1 and 11 allowable over he '598 patent in view of Manning, and withdrawal of the rejection of Claims 1 and 11 is respectfully requested.

Claim 10 is rejected as being anticipated by Manning.

Amended Claim 10 recites a method in an interferometer including guiding optical beams through use of a first and a second angle reflector, constituted by plane reflectors, by reflecting the optical beams off the first and the second angle reflector; guiding the optical beams reflected from the first and the second angle reflector through use of at least one end reflector, constituted by plane reflectors, by reflecting the optical beams off the at least one end reflector, and wherein an angle line of the at least one end reflector is perpendicular to an angle line of both of the first and the second angle reflector; and changing an optical path difference between the optical beams by rotating the first and the second angle reflector around an axis.

Nowhere in Manning is there any disclosure or suggestion of changing an optical path difference between optical beams by rotating a first and a second angle reflector around an axis, in combination with the other aspects recited in amended Claim 10.

Claim 10 is therefore allowable over Manning, and withdrawal of the rejection of Claim 10 is respectfully requested.

The dependent claims are allowable at least by virtue of their dependence from allowable independent claims, and therefore no further discussion of the dependent claims is needed.

Early and favorable action with respect to this application is respectfully requested.

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving any remaining issues pertaining to this application the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

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Date: April 16, 2009

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